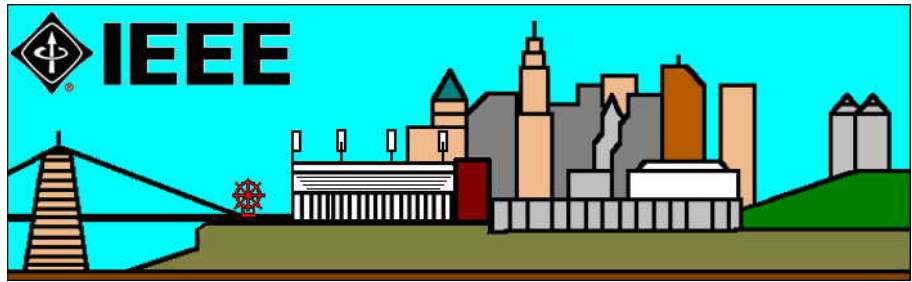


**IEEE CINCINNATI
SECTION
NEWSLETTER
MARCH 2003**



MARCH MEETING

CELL PHONE TECHNOLOGY: HOW & WHAT?

- DATE:** Thursday, March 27, 2003
- PLACE :** Raffel's – 10160 Reading Road (see below for directions)
- TIME :** 5:30 p.m. to 7:00 p.m. - Social Time/Dinner
7:00 p.m. to 8:30 p.m. - Program
- COST FOR DINNER:** \$15.00 which includes a buffet dinner, soft drinks/coffee, tax & gratuity.
Cost for student members - \$10.00

MENU SELECTIONS: Maryland Crab Cakes, Center Cut Chops with Baked Apples, Country Fried Chicken, Broccoli & Carrot Casserole, Buttered Corn, Whipped Potatoes with Gravy, Tossed Salad with Dressings, Rolls & Butter, Apple Dumplings, Coffee, Tea Iced Tea, Soft Drinks. There is also a bar available for the purchase of alcoholic drinks. Raffel's is located at 10160 Reading Road, south of Glendale-Milford Road on the east side of Reading. Take I-75 to the Glendale-Milford Rd. Exit, go east on Glendale-Milford Road approximately 3/4 of a mile to Reading Rd. and turn right on Reading.

Please call the Cincinnati Section Voice Mailbox at 513-629-9380, by **Noon, Tuesday, March 25, 2003** if you plan to attend. Please leave your **Name, IEEE Member Number**, and **a daytime telephone number**. You may also make a reservation by e-mailing our Arrangements Chair, Jack Beckmeyer, at j.beckmeyer@ieee.org

ABOUT THE PRESENTATION: Wireless technology is growing at a breath-taking pace and is influencing the way people live and interact. The persuasiveness of mobile computing is being felt not only by the business, but also by each household. Future of mobile computing seems to be very promising and anywhere, anytime, any device access to information is a reality. In this presentation, we describe basics of how wireless cell phones work, how mobility is supported, and what is the underlying infrastructure. We illustrate applications of wireless networking in diverse areas like travel, education, stock trading, military, package delivery, disaster recovery and medical emergency care. We also look at the challenges faced by the wireless technology and project future directions.

ABOUT THE SPEAKER: **Dr. Dharma P. Agrawal** is the Ohio Board of Regents Distinguished Professor of Computer Science and Computer Engineering and the founding director for the Center for Distributed and Mobile Computing in the Department of Electrical & Computer Engineering and Computer Science, University of Cincinnati, OH. His current research interests energy efficient routing and information retrieval in ad hoc and sensor networks, effective handoff handling and multicasting in integrated wireless networks, interference

analysis in Piconets and routing in Scatternet, use of directional antennas for enhanced QoS and Scheduling of periodic real-time applications. He has edited several books and his recent coauthored book, *Introduction to Wireless and Mobile Systems*, has just been published by Brooks/Cole publishing.

Dr. Agrawal has over 330 papers and four patents. He has been the Program Chair and General Chair for numerous international conferences and meetings and has delivered keynotes for five international conferences. He has received numerous awards including IEEE Third Millennium Medal and is a Fellow of the IEEE and a Fellow of the ACM. Very recently, he has been selected as a Fulbright Senior Specialist for a duration of five years.

CHAIR'S MESSAGE

by Fred Nadeau, Section Chair

Region 2 hosted an Executive Committee meeting in Philadelphia on February 22 and 23 at which all Sections in the Region were represented. The new Director, Moshe Kam, and his staff emphasized several things of which our members should be aware:

1) There are many Section members who are eligible for senior membership and Moshe Kam stressed that anyone who is eligible should sign up to be seniors. Anyone with ten years as an IEEE member and 10 years of engineering experience (which can include college education) is eligible. See the following IEEE web site for more details: <http://www.ieee.org/organizations/rab/md/smelev.htm> . My goal is to have 15 members apply for senior membership this year. In the Greater Cincinnati Area, contact myself (f.nadeau@ieee.org) or Jim Everly (everlyjo@email.uc.edu). There is also an article elsewhere in this newsletter regarding an upcoming Senior Membership Application Workshop.

2) Region 2 is placing greater priority on fostering members careers. In these times of large numbers of layoffs, working members need to help their fellow out-of-work members through networking to help find employment. Our Section will stand ready to help.

3) Tom Tullia, Region 2 Director -Elect, emphasized an renewed effort in industrial relations. Each section has been tasked to work with industry in their area and promote company support for our IEEE members in both education and membership. We will launch a project to work with willing industry to this end.

4) The Region also asked that each Section work more closely with branches, chapters, and societies by sponsoring joint meetings and social events. The Section will take this on this year and include the effort in our meeting program.

Many other issues were discussed and will be mentioned on the Section web site in the future.

My final note to members is that the Section is your organization to help you and to interface with you on regional and national matters and issues. Please take the opportunity to meet your representatives and come to Section meetings. Let us know your needs and issues.

Fred Nadeau, Section Chair
E-mail: f.nadeau@ieee.org
Phone No. 937-289-2800

NEW MEMBERS

The following individuals are IEEE members who are new to our Section:

Anthony A. Blythe	Steve Harthun	M A. Miskus
Beth M. Bruns	Syed Adeel A. Jafri	Nilesh Patel
Ric Caldwell	Joseph R. Jancauskas	Parikshit Prasad
Sarjoun S. Doumit	Sudhir R. Kshirsagar	Emanuel Rao
Michael Duval	Joseph A. Mica	Clifford Still

We wish to extend our welcome to all of our Section's new members!!!

Scanning the Past: A History of Electrical Engineering from the Past Submitted by Dick Reiman, Historian

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Arthur F. Van Dyck and Dynamic Symmetry

Sixty years ago this month the PROCEEDINGS OF THE INSTITUTE OF RADIO ENGINEERS (IRE) included a paper by Arthur Van Dyck concerning the use of dynamic symmetry in radio design. At the time he was manager of the license laboratory of the Radio Corporation of America (RCA) and he was quite experienced in the design and testing of radio receivers.

In his paper, Van Dyck characterized dynamic symmetry as being "the science of vital relations to areas" and he asserted that it had a "strong fascination" for engineers due to its serving as a connecting link between art and engineering. He credited a Yale University professor, Jay Hambidge, for the rediscovery that the beauty of ancient art, especially that of Greece, had reflected the use of the "exact geometrical formulas" of dynamic symmetry. Van Dyck argued that knowledge of the principles of dynamic symmetry would help radio design engineers enrich their designs so that they would seem "vital, pleasing, and right" and demonstrate "coherence, vitality, and feeling." He suggested that an understanding of dynamic symmetry would be particularly beneficial to those designers who were "not endowed with that artistic sense which instinctively selects those forms which are pleasing." He used examples which required only a ruler and compass to construct and would have been relatively easy to follow by engineers with some background in plane geometry or engineering graphics.

Van Dyck distinguished between two methods employing dynamic symmetry principles which he called convergent and divergent. To use the convergent method, the designer began with a whole object such as a radio cabinet profile and worked inward to determine the optimum size and location of internal parts. With the divergent method, one began with an internal part and worked outward. He used the design of a commercial radio loudspeaker and a vacuum tube to illustrate the use of the two methods in radio design. He stated that radio design had been mainly utilitarian until broadcast receivers had entered the home but that appearance had now become an important aspect of design.

Van Dyck was born in Stuyvesant Falls, New York, in 1891 and became an amateur radio enthusiast as a teenager. He received an undergraduate degree from Yale in 1911 and then took a job as what he later termed a "radio laboratorian" for the National Electric Signaling Company in Massachusetts. He joined the Society of Wireless Telegraph Engineers and later became a charter member of the IRE when it was formed in 1912. He worked for several other companies including the Westinghouse Company, American Marconi, and General Electric before joining the research department of RCA in 1922. He also served in the U.S. Navy as a radio expert during 1917-19. He became an IRE fellow in 1925 and was coauthor of two papers published in the PROCEEDINGS in November 1928. One of the papers covered methods used for quantitative testing of radio

receivers and the other was concerned with production tests of vacuum tubes. Among the tests of vacuum tubes were the "drop test" and the "bump test." In the bump test a vacuum tube served as a pendulum bob which would strike a plane surface after traveling through a prescribed arc. Van Dyck published another IRE paper in the February 1936 PROCEEDINGS on the topic of "preferred numbers," which he regarded as closely related to dynamic symmetry. As examples where preferred numbers were recommended he mentioned the values of fixed resistors and capacitors.

Van Dyck served as president of the IRE during 1942, and a principal theme of his tenure was the need for engineers to become more socially responsible. He addressed this theme in a paper entitled "The Engineer in Modern Society," published in the July 1942 issue of the PROCEEDINGS. At a 30th anniversary meeting of the IRE in May 1942, Van Dyck showed lantern slides of his 1908 amateur radio station. A published account of the event commented that his slides had shown "a very trim, dynamically symmetrical arrangement of apparatus." He was recalled to active duty in the Navy in April 1943 and served until January 1946, when he returned to RCA. He authored a book entitled *The Mysteries of Television*.

*James E. Brittain
School of History, Technology, and Society
Georgia Institute of Technology*

TO SUBSCRIBE TO THE ELECTRONIC NEWSLETTER

This newsletter is only available via e-mail or the Section's web page at <http://ieee.cincinnati.fuse.net/> with the exception of new Section members (one issue only) or members who have specifically requested a copy be delivered through the U. S. Mail.

If you are a new Section member and would like to get this newsletter electronically, please contact Bob Morrison (Editor) at **513-287-3697** or by e-mail at j.r.morrison@ieee.org. Provide your name and member number. In case there are questions, please include a daytime telephone number as well.

If you would like the "Snail Mail" version, you must contact Bob Morrison via the above means or call the Section's voice mail at **513-629-9380**.

Senior Membership Application Workshop

By Jim Everly, Vice-Chairman & PACE Representative

The Cincinnati Section of IEEE will sponsor a senior membership application workshop sometime in June 2003. A volunteer group of Cincinnati Section IEEE Senior Members and IEEE Fellows will be available to assist section members with application forms and references. Section members interested in elevating their current member status to Senior Member grade should consider attend the workshop. Arrangements for the workshop are being finalized by our Arrangements Chairman and will appear in upcoming newsletters. In the interim if you have questions concerning the workshop please feel free to contact Jim Everly, Workshop Chairman, at j.everly@ieee.org.

The senior member grade is the highest IEEE membership grade that can be obtained by application. Often-cited reasons for applying include recognition of accomplishments by peers, professional advancement and personal satisfaction. Many section members qualify for advancement to the senior member grade much earlier than they realize.

In most sections, members are slow to apply because they are not aware of the requirements. It's worth noting that holding the senior member grade in IEEE does not imply being at the age level of a "senior citizen." Mid-career or earlier is an appropriate time for a member to apply for an upgrade.

Members who have as few as 10 total years of professional experience, with five or more of those years as significant performance, can meet the minimum requirements for the senior member grade. Applications are reviewed by panels of the Admission and Advancement Committee in regional meetings held 10 times each year.

The 10-year minimum requirement for professional experience can include three years for an applicable bachelor's degree, one year for a master's, and another one for a Ph.D. The panels look closely at the documentation on the five years of significant experience. It is suggested that applicants attach a résumé to aid the panel. Asking for more than the required three senior members or fellows to complete the confidential reference form is also a good idea, since the application can be considered as soon as the first three are received.

For more information on IEEE senior member grade or to receive a senior member application kit, send an e-mail request to "application-request@ieee.org" or contact the IEEE by phone at 800-678-4333.

Take a leadership role in our technological society.

Are you thinking about a career change or that next promotion? The Masters of Science in Technology (MST) program at Northern Kentucky University could give you the advantage you need.

The MST degree has options in:

- Technology Management
- Quality Assurance
- Industrial/Engineering Systems

It can be obtained within a two-year period. Courses are offered in the evening and over the Internet.

For more information about the Masters of Science in Technology program at Northern Kentucky University, visit the MST homepage at www.nku.edu/~mst, or call (859) 572-6352.



IEEE NEWS

U.S. Continues to Grant H-1B Visas Despite Record Unemployment

WASHINGTON (February 6, 2003) - According to the U.S. Department of Labor, 120,000 electrical engineers and computer scientists were unemployed in the fourth quarter of 2002. Despite this and other high levels of unemployment, 79,100 first-time H-1B visas were issued to non-U.S. citizens in fiscal year 2002, which ended Sept. 30. Add this to the 215,000 extensions and initial visas granted in exempt categories such as nonprofits, laboratories and colleges, and the number swells to more than 294,000.

"When so many American workers are unemployed, I believe it's time for Congress to lower the H-1B visa quota back to 65,000 from its current level of 195,000. This will happen automatically if no new legislation is approved," IEEE-USA President Jim Leonard said. "The large pool of guest workers makes it much more difficult for skilled U.S. workers to find jobs."

The Bureau of Labor Statistics reported that 26,000 electrical and electronics engineers (EEs) were unemployed in the fourth quarter, as were 94,000 computer scientists, which includes systems analysts. The unemployment rate for EEs dipped slightly from the third quarter, 3.9 percent vs. 4.0 percent, but rose for computer scientists, from 4.6 percent to 5.1 percent.

For 2002, the quarterly average of 29,000 unemployed EEs and 89,000 out-of-work computer scientists was the highest figure ever for the individual groups. Unemployment among EEs more than doubled from 2.0 percent in 2001 to 4.2 percent in 2002. For computer scientists the rate jumped from 3.4 percent to 5.0 percent. The EE unemployment rate has more than tripled since 2000, when it stood at 1.3 percent; and more than doubled among computer scientists (2.0 percent).

Despite a grim job outlook for the U.S. high-tech workforce, industry has petitioned, and government has granted 799,700 new or renewal H-1B visas in the past two years. This includes 163,600 new visas in 2001 and 342,000 in exempt categories. And when FY '02 ended, another 18,000 new H-1B applications were pending.

Philadelphia Area School Wins IEEE-USA National Award

WASHINGTON (February 20, 2003) - Drexel Hill (Pa.) Middle School won the third IEEE-USA Best Communications System Award at the national finals of the National Engineers Week Future City Competition on Wednesday. The honor, one of 19 special awards presented at the Hyatt Regency Hotel-Capitol Hill, was for the most "efficient and accurate communications system."

Students Philip Crone, Marina Kec and Rachel McKlindon comprised the team with David Granger, a Drexel Hill technology and engineering teacher, and IEEE member William Waldron, manager, performance engineering for Cingular Wireless in King of Prussia, Pa. The team advanced to Washington by winning the Philadelphia regional competition last month.

Drexel Hill's city, Octavia, is set in the year 2100 and located in the Bay of Fundy off the coast of Nova Scotia. Its communications system, Telenium, is made up of a silicon chip inserted into each person's hand at birth. The chip generates electrical impulses to the optic nerve and produces a holographic screen in front of one's eyes for viewing sports and entertainment, news, banking information and the Internet. Voice transmissions go to the user's eardrum, while the skeleton serves as the antenna to cell site receivers.

"They had their communications system all worked out. It was pretty impressive," said Jerry Schmitz, a mechanical engineer from Las Vegas, who judged the competition with Tom Easton, a metrologist from Cedar Rapids, Iowa. "It was very unique in their design and application."

IEEE members Jean Eason of Fort Worth, Texas, and Mike Andrews of Scottsdale, Ariz., presented each team member with a plaque and \$100 U.S. Savings Bond. Fellow members Ananthram Swami and Lowell Smith were unable to serve as judges again this year because of the crippling snow that struck the Washington area.

The Future City Competition, which IEEE-USA introduced to Engineers Week in 1993, is designed to encourage the future generation of engineers. Seventh and eighth grade students create their own vision of a city of tomorrow, working first on computer and then constructing three-dimensional scale models. About

30,000 students competed this past year. Mission Middle School of Bellevue, Neb., won the overall national competition Wednesday. Visit www.futurecity.org.

Former IEEE-USA President to Receive Engineering Professionalism Award

WASHINGTON (February 26, 2003) - Paul Kostek, 1999 IEEE-USA president and current chair of the American Association of Engineering Societies (www.aaes.org), will receive the Robert S. Walleigh Distinguished Contributions to Engineering Professionalism Award in his hometown of Seattle on March 29.

Kostek joins fellow IEEE-USA award recipients in recognition of their professional, technical and literary contributions to public awareness and understanding of the engineering profession in the United States. Kostek's honor is "for actively promoting the mission and goals of IEEE and IEEE-USA, and for his commitment to the engineering community."

IEEE-USA's distinguished awards are administered under its Awards and Recognition Committee and approved by the IEEE-USA Board of Directors. They will be presented at an awards ceremony held in conjunction with the IEEE-USA Leadership Workshop (<http://www.ieeeusa.org/conferences/2003workshop/default.asp>).

Professional Awards

ROBERT S. WALLEIGH DISTINGUISHED CONTRIBUTIONS TO ENGINEERING PROFESSIONALISM AWARD

Paul J. Kostek, "For actively promoting the mission and goals of IEEE and IEEE-USA and for his commitment to the engineering community."

CITATION OF HONOR

Melvin Hotz, "For outstanding contributions and sustained leadership in Licensure and Registration activities and the promotion of engineering professionalism."

Luis G. Kun, "For exemplary contributions in the inception and implementation of a health care information technology vision in the United States."

Fausto E. Molinet, Jr., "For major contributions to the advancement of professionalism and the promotion of entrepreneurship."

Larry G. Nelson Sr., "For outstanding contributions to the development and implementation of precollege engineering programs."

DIVISIONAL PROFESSIONAL LEADERSHIP AWARD

John W. Ballance, "For leadership in the power industry and outstanding contributions to IEEE professional activities."

Frank Lord, "For sustained high quality contributions to the Vehicular Technology Society and as founder and first editor of IMPACT."

REGIONAL PROFESSIONAL LEADERSHIP AWARD

Dr. Eric S. Ackerman, "For tireless dedication to the IEEE, the Florida Council and Region 3."

Ray E. Aker, "For outstanding leadership in the Los Angeles Council and Region 6."

Robert R. Bruckman, "For outstanding leadership in the Cedar Rapid Section and Region 4."

Martin Kaliski, "For outstanding leadership in the Central Coast Section and Region 6."

Dennis W. Lamont, "For his long time commitment in promoting leadership and professional development in Region 4 and in its Sections and Chapters."

Donald A. Preston, "For ongoing efforts to achieve the advancement of the Institute and its members in Region 5."

PROFESSIONAL ACHIEVEMENT AWARD

Dr. David E. Flinchbaugh, "For significant engineering contributions in developing medical devices."

John H. Pease, Jr., "For outstanding leadership in the Oregon Section and Region 6."

Edwin Podell, "For outstanding, sustained editorial and media contributions in the Philadelphia Section."

New Horizons Telecom, Inc., "For outstanding practice of innovative engineering in rural telecommunications and contributions to their IEEE employees' careers."

Schweitzer Engineering Laboratories, Inc., "For outstanding contributions to the professional and technical development of their IEEE member employees."

Technical Award

HARRY DIAMOND MEMORIAL AWARD

Hans Joachim Liebe, "For pioneering contributions to the microwave spectroscopy of oxygen and water vapor and for the development of models of the complex refractivity of the atmosphere."

Literary Awards

DISTINGUISHED LITERARY CONTRIBUTIONS

FURTHERING PUBLIC UNDERSTANDING OF THE PROFESSION

Ben W. Stearns, "For his book, Arthur Collins: Radio Wizard."

DISTINGUISHED LITERARY CONTRIBUTIONS

FURTHERING ENGINEERING PROFESSIONALISM

Abigail J. Sellen and Richard H.R. Harper, "For co-authoring the book, The Myth of the Paperless Office."

David E. Brown, "For his book, Inventing Modern America: From the Microwave to the Mouse."

For more information, visit the IEEE-USA Awards and Recognition Web page at <http://www.ieeeusa.org/AWARDS/index.html>, or contact Sandra Kim at sandra.kim@ieee.org. Nominations are being accepted for the 2003 awards. The deadline is August 1, 2003.

The IEEE Cincinnati Section Executive Committee

Member Names and Phone Numbers

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